

Sub A2
WE CLAIM:-

1. A controller for controlling printing on both surfaces of a sheet of print media, the controller including:

5 a first print controller for controlling printing by a page width printhead of a first print engine;

a second print controller for controlling printing by a page width printhead of a second print engine substantially simultaneously with the printing by the printhead of the first print engine;

10 a first communications link interconnecting the first print controller and the second print controller for synchronising the print controllers; and

a second communications link interconnecting at least one of the print controllers with a host system for receipt from the host system of descriptions of pages to be printed on said surfaces of the sheet of print media by the print engines.

15 2. The controller as claimed in claim 1 wherein the first print controller is a master print controller and the second print controller is a slave print controller operable under command of the master print controller on receipt of signals via the first communications link.

20 3. The controller as claimed in claim 2 in which the first communications link is a bi-directional link enabling the transmission of data from the slave print controller to the master print controller.

25 4. The controller as claimed in claim 2 in which the master print controller has the second communications link connected to it to present a unified view to the host system to mask the presence of the slave print controller.

30 5. The controller as claimed in claim 2 in which the master print controller prints described pages on a rear surface of the print media with the slave print controller printing on a front surface of the print media so that the master print controller always has a page buffer available for a page description destined for the slave print controller.

6. The controller as claimed in claim 2 in which print synchronisation is achieved by the master print controller controlling a printing operation of the slave print controller.

7. The controller as claimed in claim 6 in which printhead interfaces of both print controllers are synchronised to a shared line synchronisation signal generated by one of the print controllers.

5 8. A method of controlling printing on both surfaces of a sheet of print media, the method including the steps of:
receiving data relating to a first page to be printed in a first print controller of a first print engine;
transmitting the data relating to the first page from the first print controller to a second print controller of a second print engine;
10 receiving data relating to a second page to be printed in the first print controller; and
controlling printing by the print engines under command of the first print controller to achieve synchronisation of printing of the pages by the first print controller and the second print controller on rear and front surfaces of the print media, respectively.

15 9. The method as claimed in claim 8 which includes synchronising printhead interfaces of both print controllers by means of a shared line synchronisation signal generated by the first print controller which is a master print controller.

20 10. The method as claimed in claim 9 which includes transmitting data relating to the pages to be printed from a host system to the master print controller by means of a host communications link, the master print controller determining whether or not said data are to be routed to the second print controller which is a slave print controller.

25 11. The method as claimed in claim 10 which includes receiving said data in its entirety in a memory of the master print controller before forwarding it to the slave print controller.

30 12. The method as claimed in claim 10 which includes selecting the master print controller to print the rear surface of the print media to ensure that the master print controller always has a page buffer available for a page description destined for the slave print controller.

35 13. The method as claimed in claim 10 which includes, periodically, transmitting predetermined data from the slave print controller to the master print controller.